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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,704	11/29/2001	Jong Won Seok	P67356US0	2611
43569 7590 05/30/2007 MAYER, BROWN, ROWE & MAW LLP 1909 K STREET, N.W. WASHINGTON, DC 20006				
EXAMINER HENNING, MATTHEW T				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/995,704

Applicant(s)

SEOK ET AL.

Examiner

Matthew T. Henning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-10 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1 This action is in response to the communication filed on 3/8/2007.

2 **DETAILED ACTION**

3 ***Continued Examination Under 37 CFR 1.114***

4 A request for continued examination under 37 CFR 1.114, including the fee set forth in
5 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is
6 eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)
7 has been timely paid, the finality of the previous Office action has been withdrawn pursuant to
8 37 CFR 1.114. Applicant's submission filed on 3/8/2007 has been entered.

9 ***Response to Arguments***

10 Applicant's arguments filed 3/8/2007 have been fully considered but they are not
11 persuasive.

12 Regarding applicants' argument that because a patent is presumed operable, the teachings
13 of Preuss of adding a delay to the audio signal of Lam would not be obvious, the examiner does
14 not find the argument persuasive. Although patent specifications are presumed operable, the
15 examiner points out that patent specifications are not required to disclose obvious features. As
16 such, simply because Lam did not disclose the delay, does not render the teachings of Preuss
17 unobvious. As such the examiner does not find the argument persuasive.

18 In response to applicants' argument that adding a delay to the audio signal of Lam, as
19 taught by Preuss, would not be for the same reason as was done by the applicants, the fact that
20 applicants have recognized another advantage which would flow naturally from following the
21 suggestion of the prior art cannot be the basis for patentability when the differences would

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1 otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). As
2 such, the examiner does not find the argument persuasive.

3 Regarding the applicants' argument that adding a delay to the audio signal would render
4 the system of Lam inoperable for its intended purpose, the examiner does not find the argument
5 persuasive. The purpose of Lam is to embed a watermark into an audio signal, and adding a
6 delay to the audio signal would not prevent the watermark from being embedded. As such, the
7 examiner does not find the argument persuasive. The examiner also notes applicants' admission
8 on page 7 paragraph 1 of the communication dated March 8, 2007, that the combination as
9 proposed by the examiner would encode the auxiliary information in an echo signal.

10 Regarding the applicants' argument that in Lam the copyright information is included in
11 the output from element 94 (echo signal generation means), but the applicants' invention does
12 not have copyright information in the echo signal, the examiner does not find the argument
13 persuasive. The last limitation of claim 1 states "the echo signal of the original audio signal
14 having copyright information therein", which clearly shows that the echo signal of the instant
15 application does contain copyright information. As such, the examiner does not find the
16 argument persuasive.

17 In response to applicants' argument that the references fail to show certain features of
18 applicant's invention, it is noted that the features upon which applicant relies (i.e., a residual
19 signal output means; estimation of the inherent spectrum) are not recited in the rejected claim(s).
20 Although the claims are interpreted in light of the specification, limitations from the specification
21 are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir.

1 1993). Because these limitations are not recited in the claims language, the examiner does not
2 find the argument persuasive.

3 Regarding the applicants' argument that d(n) of Lam is not an echo signal, the examiner
4 does not find the argument persuasive. In response to applicant's arguments against the
5 references individually, one cannot show nonobviousness by attacking references individually
6 where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413,
7 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.
8 1986). Furthermore, as discussed above, applicants' admission on page 7 paragraph 1 of the
9 communication dated March 8, 2007, that the combination as proposed by the examiner would
10 encode the auxiliary information in an echo signal, renders the argument moot as the applicants
11 have already admitted that the combination produces embedding in an echo signal. As such, the
12 examiner does not find the argument persuasive.

13 Claims 1-2, 4-10, and 12-14 have been examined.

14 All rejections presented in the final action dated 8/26/2005 have been maintained.

15 ***Claim Objections***

16 Claim 10 is objected to because it includes reference characters which are not enclosed
17 within parentheses.

18 Reference characters corresponding to elements recited in the detailed description of the
19 drawings and used in conjunction with the recitation of the same element or group of elements in
20 the claims should be enclosed within parentheses so as to avoid confusion with other numbers or
21 characters which may appear in the claims. See MPEP § 608.01(m).

22 Claims 1-2, 4-7, 9-10, and 12-13 objected to because of the following informalities:

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Regarding claim 1, the terms "the original signal", "the residual signal" and "the inherent spectrum" all lack antecedent basis in the claim.

Regarding claim 9, "the residual signal" and "the delayed version of the original signal" lack antecedent basis in the claim.

Regarding claim 10, "the resultant output sign" and "the sign detector" lack antecedent basis in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "i.e., 0 or 1," renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to

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1 *which said subject matter pertains. Patentability shall not be negated by the manner in which*
2 *the invention was made.*
3

4 Claims 1-2, 5-10, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable
5 over Lam et al. (US Patent Number 5,940,429) hereinafter referred to as Lam, and further in
6 view of Preuss et al. (US Patent Number 5,319,735) hereinafter referred to as Preuss.

7 Regarding claim 1, Lam disclosed an apparatus for embedding a watermark into an
8 original audio signal (See Lam Fig. 5(b) element s(n)), comprising: a linear prediction analysis
9 means for generating a prediction coefficient of the original audio signal by means of a linear
10 prediction analysis after the original audio has been inputted thereto (See Lam Fig. 5(b) Element
11 88 and Col.8 Last Paragraph); a residual signal output means (See Lam Fig. 5(b) Element 104)
12 for outputting a residual signal of a the original audio signal by filtering the original audio signal
13 using the prediction coefficient generated from the linear prediction analysis means (See Lam
14 Col. 8 Line 6 – Col. 9 Line 4); an echo signal generation means (See Lam Fig. 5(b) Element 94)
15 for generating an echo signal of the original audio signal by synthesizing the prediction
16 coefficient of the original audio signal and the residual signal of the original audio signal (See
17 Lam Col. 9 Lines 43-48); and a copyright information insertion means for generating a
18 watermarked audio signal by combining the original audio signal and the echo signal of the
19 original audio signal having copyright information therein (See Lam Fig. 5(b) Element 100 and
20 Col. 9 Lines 49-53), but Lam failed to specifically disclose a delay means for delaying the
21 original signal for a predetermined delay time; and a linear prediction analysis filter for
22 outputting the residual signal by eliminating the inherent spectrum of the delayed version of the

1 original audio signal after filtering the delayed original audio signal using the prediction
2 coefficient.

3 Preuss teaches that in order to compensate for delays introduced by various processing
4 steps in a signal embedding system, delays can be introduced into an audio signal (See Preuss
5 Col. 6 Last Paragraph).

6 It would have been obvious to the ordinary person skilled in the art at the time of
7 invention to employ the teachings of Preuss in the audio processing system of Lam by delaying
8 the original audio signal $s(n)$ prior to input to element 104. This would have been obvious
9 because the ordinary person skilled in the art would have been motivated to compensate for the
10 delays introduced by the LPC analysis 88.

11 Regarding claim 8, Lam disclosed a method for embedding a watermark into an original
12 audio signal, the method comprising the steps of: a) generating a prediction coefficient based on
13 the original audio signal by means of the linear prediction analysis (See Lam Fig. 5(b) Element
14 88 and Col.8 Last Paragraph); b) outputting a residual signal of the audio signal by filtering the
15 original audio signal and eliminating an inherent spectrum of the audio signal, using the
16 prediction coefficient of the original audio signal (See Lam Col. 8 Line 6 – Col. 9 Line 4); c)
17 outputting a synthesis signal by using the prediction coefficient of the original audio signal and
18 the residual signal of the original audio signal (See Lam Col. 9 Lines 43-48); d) granting an error
19 correction function to the copyright information (See Lam Col. 7 Lines 51-57); e) assigning a
20 sign to the synthesis signal after an error corrected copyright information is inputted thereto (See
21 Lam Fig. 5(b) Elements 90, 94, and 98 and Col. 7 Lines 63-67); and f) outputting a watermarked
22 audio signal by adding the original audio signal and the synthesis signal that a predetermined

1 sign has been assigned (See Lam Fig. 5(b) Element 100 and Col. 9 Lines 49-53), but Lam failed
2 to disclose delaying the original audio signal prior to inputting it to element 104).

3 Preuss teaches that in order to compensate for delays introduced by various processing
4 steps in a signal embedding system, delays can be introduced into an audio signal (See Preuss
5 Col. 6 Last Paragraph).

6 It would have been obvious to the ordinary person skilled in the art at the time of
7 invention to employ the teachings of Preuss in the audio processing system of Lam by delaying
8 the original audio signal $s(n)$ prior to input to element 104. This would have been obvious
9 because the ordinary person skilled in the art would have been motivated to compensate for the
10 delays introduced by the LPC analysis 88.

11 Regarding claims 9 and 14, Lam disclosed an apparatus for detecting a watermark from a
12 watermarked audio signal, the apparatus comprising: a linear prediction analysis means for
13 generating a prediction coefficient by means of the linear prediction analysis of the watermarked
14 audio signal, wherein the linear prediction analysis means generates the residual signal in which
15 the residual signal of the original audio signal (See Lam Fig. 6 Element 116 and Col. 14 Lines 1-
16 7 and 16-29); a linear prediction analysis filter for outputting a residual signal by eliminating an
17 inherent spectrum of the original audio signal after filtering the watermarked audio signal using
18 the prediction coefficient (See Lam Fig. 6 Element 114 and Col. 14 Lines 7-29); a short-time
19 autocorrelation means for calculating an autocorrelation using the residual signal outputted from
20 the linear prediction analysis filter (See Lam Fig. 6 Elements 118, 120, and 122 and Col. 14
21 Lines 30-42); and a sign detection means for detecting copyright information after detecting a
22 sign of the value outputted from the short-time autocorrelation means (See Lam Col. 14 Lines

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1 30-42); but Lam failed to disclose that the watermarked audio signal uses a residual signal of a
2 delayed version of the original audio signal that is delayed for a predetermined delay time (T).

3 Preuss teaches that in order to compensate for delays introduced by various processing
4 steps in a signal embedding system, delays can be introduced into an audio signal (See Preuss
5 Col. 6 Last Paragraph).

6 It would have been obvious to the ordinary person skilled in the art at the time of
7 invention to employ the teachings of Preuss in the audio processing system of Lam by delaying
8 the original audio signal $s(n)$ prior to input to element 104. This would have been obvious
9 because the ordinary person skilled in the art would have been motivated to delays introduced by
10 the LPC analysis 88.

11 Regarding claim 2, Lam and Preuss disclosed that the linear prediction analysis means
12 generates the prediction coefficient which is able to predict an inherent spectrum of the audio by
13 virtue of the linear prediction analysis (See Lam Col. 8 Lines 8-24).

14 Regarding claim 5, Lam and Preuss disclosed that the echo signal generation means is a
15 linear prediction synthesis filter for outputting the echo signal of the original audio signal by
16 synthesizing the prediction coefficient of the original audio signal outputted from the linear
17 prediction analysis means and the residual signal of the delayed version of the original audio
18 signal outputted from the residual signal output means (See Lam Col. 9 Lines 43-48).

19 Regarding claim 6, Lam and Preuss disclosed that the copyright information insertion
20 means includes: an error correction encoder for granting an error correction function to the
21 copyright information embedded into the original audio signal (See Lam Fig. 5(b) Element 86
22 and col. 7 Lines 51-62); a sign generator for assigning a sign to the echo signal of the original

1 audio signal outputted from the echo signal generation means according to an error-corrected
2 copyright information outputted from the error correction encoder (See Lam Col. 7 Line 51-67
3 and Col. 8 Lines 25-31); and a summer for outputting a watermarked audio signal by adding a
4 sign-assigned signal outputted from the sign generator and the original audio signal (See Lam
5 Col. 7 Lines 45-59).

6 Regarding claim 7, Lam and Preuss disclosed the error correction encoder outputs each
7 different value, i.e., 0 or 1, according to the copyright information, the sign generator assigns a
8 positive sign or a negative sign to the echo signal of the original audio signal and the summer
9 outputs the watermarked audio signal having the copyright information therein by adding the
10 echo signal to the original audio signal or subtracting the echo signal from the original audio
11 signal (See Lam Col. 7 Lines 51-67 and Col. 8 Lines 45-59, although Lam did not explicitly state
12 “subtraction”, Lam did disclose assigning a negative value to the watermark data and then
13 adding it to the original signal, and adding a negative number is the same as subtraction).

14 Regarding claim 10, Lam and Preuss disclosed an error correction decoder for outputting
15 the error-corrected copyright information through an error-correction decoding step after the
16 resultant output sign detected from the sign detector 204 is inputted thereinto (See Lam Fig. 6
17 Element 126 and Col. 14 Lines 47-49).

18 Regarding claim 12, Lam and Preuss disclosed that the short-time autocorrelation means
19 finds out the residual signal of the original audio signal and the residual signal of the delayed
20 version of the original audio signal by calculating the autocorrelation of the residual signal (See
21 Lam Col. 14 Lines 39-46).

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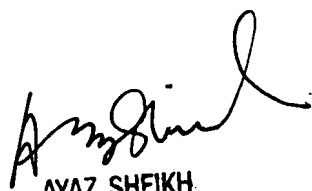
1 the end of the THREE-MONTH shortened statutory period, then the shortened statutory period
2 will expire on the date the advisory action is mailed, and any extension fee pursuant to 37
3 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,
4 however, will the statutory period for reply expire later than SIX MONTHS from the date of this
5 final action.

6 Any inquiry concerning this communication or earlier communications from the
7 examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790.
8 The examiner can normally be reached on M-F 8-4.

9 If attempts to reach the examiner by telephone are unsuccessful, the examiner's
10 supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the
11 organization where this application or proceeding is assigned is 571-273-8300.

12 Information regarding the status of an application may be obtained from the Patent
13 Application Information Retrieval (PAIR) system. Status information for published applications
14 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
15 applications is available through Private PAIR only. For more information about the PAIR
16 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
17 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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24 /Matthew Henning/
25 Assistant Patent Examiner
26 Art Unit 2131
27 5/23/2007


AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100